No.



200200115

# THEE CONTRES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME;

Stalof Weiball AP

Mercis, there has been presented to the

# Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITIORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN DUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY ECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF

PEA, FIELD

'SW Circus'

In Testimonn Murrent. I have hereunto set my hand and caused the seal of the Plant Haristy Protection Office to be affixed at the City of Washington, D.C. this twenty ninth day of April, in the year two thousand three.

Allost.

Q C m Jahan

Commissioner Plant Variety Protection Office Agricultural Marketing Service anderenan

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(7 U.S. C. 2421). Information is held confidential until certificate in income.

(Instructions and information collection burden statem	nent on reverse)					
1. NAME OF OWNER			TEMPORARY DESIGNATION OF EXPERIMENTAL NAME	OR 3. VARIETY NAME		
SVALOF WEIBULL AB		Marine Marine	Sw 975504	SW CIRCUS		
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code	le, and Country)		5. TELEPHONE (include area cod	e) FOR OFFICIAL USE ONLY		
5-268 81			46-418-667000	EVPO NUMBER		
SVALOU, SWEDEN			6. FAX (include area code)	20020011		
				FILING DATE		
7. IT THE SAME TO AN A SAME TO THE SAME TO	a is moon	PORATED, GIVE	76-418-667100			
<ol> <li>IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.)</li> </ol>	STATE OF	INCORPORATION	9. DATE OF INCORPORATION	MARCH 15, 2002		
CORPORATION	3.	NEDEN	1993	4.75)		
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SE	ERVE IN THIS APPLICATION	I. (First person listed will n		FILING AND EXAMINATION FEES:		
SVALOF WEIBULL LTD.				FEES: \$ 2705.00		
2-411 DOWNEY RD. SASKATOON SK						
CANADA SAN YL	0			DATE 3/5/02		
CAUADA STN 9C	.8			V CERTIFICATION FEE:		
				\$ 320		
				DATE 5/22/05		
11. TELEPHONE (Include area code) 12. FAX (Include area	code) 13.	E-MAIL	14.	CROP KIND (Common Name)		
306-477-5230 306-477-5		noward. love @	1 1 10	Sun Sativum (Field Pea)		
	231		P)	Som Sarroum (FREID FELL)		
<ol> <li>CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMIT reverse)</li> </ol>	TED (Follow instructions on	19. DOES THE C		HIS VARIETY BE SOLD AS A CLASS OF Plant Variety Protection Act)		
a. Exhibit A. Origin and Breeding History of the Variety		☑ YE	YES (If "yes", answer items 20 NO (If "no," go to item 22) and 21 below)  20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?  IF YES, WHICH CLASSES? FOUNDATION REGISTERED CERTIFIED  21. DOES THE OWNER SPECIFY THAT THE CLASSES BE			
b. 🖾 Exhibit B. Statement of Distinctness		20 DOES THE				
c. 🛛 Exhibit C. Objective Description of Variety						
d. Exhibit D. Additional Description of the Variety (Optional	n)	IF YES, WHI				
e. Exhibit E. Statement of the Basis of the Owner's Owner.		21 DOES THE				
<ul> <li>f. Voucher Sample (2,500 viable untreated seeds or, for tu verification that tissue culture will be depositied and main</li> </ul>		LIMITED AS	LIMITED AS TO NUMBER OF GENERATIONS? YES NO			
g. Filing and Examination Fee (\$2,705), made payable to "	Treasurer of the United	IF YES, SPE				
States" (Mail to the Plant Variety Protection Office)	Treasurer of the Office	NUMBER 1,	2, 3, etc. FOUNDATION	REGISTERED CERTIFIED		
		(If additional	explanation is necessary, please use	the space indicated on the reverse.)		
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) (FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERF			IETY OR ANY COMPONENT OF THE RIGHT (PLANT BREEDER'S RIGHT	VARIETY PROTECTED BY INTELLECTUAL OR PATENT)?		
OTHER COUNTRIES?		□ YE		No mah		
YES NO	CONTION TRANSFER OF	IF YES, GIVE	COUNTRY, DATE OF FILING OR IS NUMBER. (Please use space indica	SUANCE AND ASSIGNED 5-6-2002		
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISP FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please us	se space indicated on reverse		E NOMBER. (Freese use space maica	iled on reverse.)		
24. The owners declare that a viable sample of basic seed of the variet for a tuber propagated variety a tissue culture will be deposited in	ty will be furnished with applic	cation and will be replenish	hed upon request in accordance with s	such regulations as may be applicable, or		
The undersigned owner(s) is(are) the owner of this sexually reprod and is entitled to protection under the provisions of Section 42 of the				n, and stable as required in Section 42,		
Owner(s) is(are) informed that false representation herein can jeop						
SIGNATURE OF DWNER 2 0		SIGNATURE OF	OWNER			
Answer & V. Lee						
NAME (Please print or type)		NAME (Plane	ngiat or type)			
DR. HOWARD K. LOUE		NAME (Please p	nan di type)			
	DATE	0101000100	TITLE	PATE		
CDN. RESEARCH DIRECTOR, V.P.	MARCH B/02	CAPACITY OR	IIILE	DATE		

INSTRUCTIONS

20020011

SENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid ariety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense hat it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 \$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the acc of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use nasking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office Telephone: (301) 504-5518 FAX: (301) 504-5291

Homepage: http://www.ams.usda.gov/science/pvp.htm

**TEM** 

8a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;

(2) the details of subsequent stages of selection and multiplication;

(3) evidence of uniformity and stability; and

- (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 8b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
  - (1) identify these varieties and state all differences objectively;
  - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 8c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 8d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 8e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
- If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision
  after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may
  change the choice. (See Regulations and Rules of Practice, Section 97.103).
- See Section 83 of the Act for the Contents and Term of Plant Variety Protection.
- 2. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
- 3. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.
- 1. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)
- 2. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety nocluding any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)
- 3. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the ariety is protected by intellectual property right (Plant Breeder's Right or Patent).)

OTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's expresentative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or ssignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 7.175(h) of the Regulations and Rules of Practice.)

o avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, uilding 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705. Telephone: (301) 504-8089.

scording to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control mber for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data urces, gathering and maintaining the data needed, and completing and reviewing the collection of information.

16 J.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202)

\$T-470 (2-99) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (6-98) which is obsolete.

3

March 11, 2002

# CONFIDENTIAL

VARIETY "SW CIRCUS" expt. designation: SW 975504

# Origin and Breeding:

SW 975504 was developed by Svalöf Weibull AB, Svalöv, Sweden. The variety is derived from the cross 9211-9-5 x Carneval. The final cross was made in 1994.

9211-9-5 pedigree = Carneval x Sv 92536

Sv 92536 pedigree = LW 8411-1 X(RIGEL X SV U 21421)

Please be advised that LW 8411 should read 'SW 8411' (this was a typo on the application) and it's parentage is Solara x Capella. 'SV U 21421' was marketed in Sweden under the name Fjord.

SW 975504 was developed by Svalof Weibull AB, Svalov, Sweden. This semi-leafless variety originates from the cross (see confidential pedigree information package). The original cross was done in 1994. The breeding method was a pedigreed method and the variety originates from a single plant selection in the F<sub>4</sub>. Selection was made for yield, semi-leafless trait, earliness, straw stiffness, and good yellow colour. Breeder seed was bulked in F<sub>5</sub> generation.

# Statement of Uniformity and Stability

SW 975504 is uniform and stable. No offtypes. Stability has been observed in more than two seasons.

# Methods of maintaining the variety.

SW 975504 is maintained from breeder seed. Breeder seed will be maintained by Svalöf Weibull AB, Sweden and Svalof Weibull Ltd. Saskatoon, SK, Canada.

No variants were observed.

# Variety: SW CIRCUS (SW 975504) Field Pea

## Exhibit B: Statement of Distinctness

SW 975504 is a distinct variety, possible to distinguish from Carneval and Majoret which are the most similar varieties known to us. SW 975504 differs from Majoret by having yellow seed and a blunt pod. SW 975504 differs from Carneval by having 2 days earlier maturity. SW 975504 also has larger stipules and higher thousand grain weight than Carneval.

SW CIRCUS differs from Majoret by having blunt pods and yellow seed whereas Majoret has pointed pods and green seed.

We have shown 4 significant differences between SW CIRCUS and Carneval. They are stem vine length, stipule length, stipule width and pod width. Please find attached a trait comparison chart (based on the T-test), trial location information and the raw data for SW CIRCUS and Carneval from 2000 and 2001 in Svalov, Sweden as requested.

# Trait comparison between two pea varieties, SW CIRCUS and Carneval (T-test) \*\*comparisons based on data taken in the years 2000 and 2001 in Svalov, Sweden

Trait	T-value	P-range
	Analysis on the c	lata from Svalov 2000
Stem vine length	6.47	< 0.001
Stipule length	6.84	< 0.001
Stipule width	7.08	< 0.001
Pod width	3.43	0.001 < P < 0.002

	Analysis on the data from Svalov 2001			
Stem vine length	2.86	0.005 < P < 0.01		
Stipule length	3.93	< 0.001		
Stipule width	3.21	0.002 < P < 0.005		
Pod width	4.01	P < 0.001		

	2000		2001	
	SW Circus	SW Carneval	SW Circus	SW Carneval
Stem Vine Length (cm): Stipule Length (mm): Stipule Width (mm): Pod Width (mm):	53.6 53.88 25.4 13.76	45.04 48 21.72 12.8	60.08 65.56 29.2 12.96	56.56 58.4 26.12 13.88

# PVP Application for SW CIRCUS Appl. #200200115

Year	2000 SW CIRCUS	2000 Carneval	2001 SW CIRCUS	2001 Carneval
Trial Location	Svalov, Sweden	Svalov, Sweden	Svalov, Sweden	Svalov, Sweden
Planting Date	28-Apr-00	28-Apr-00	12-Apr-01	12-Apr-01
Harvest Date	17-Aug-00	17-Aug-00	15-Aug-01	15-Aug-01
Date of Vine Length Note	20-Jun-00	20-Jun-00	11-Jul-01	11-Jul-01
Date of Stipule Length Note	25-Jun-00	25-Jun-00	22-Jun-01	22-Jun-01
Date of Stipule Width Note	25-Jun-00	25-Jun-00	22-Jun-01	22-Jun-01
Date of # Nodes Note	15-Jul-00	15-Jul-00	11-Jul-01	11-Jul-01
Date of Pod Length Note	14-Aug-00	14-Aug-00	15-Aug-01	15-Aug-01
Date of Pod Width Note	14-Aug-00	14-Aug-00	15-Aug-01	15-Aug-01
Date of # Ovules Note	14-Aug-00	14-Aug-00	15-Aug-01	15-Aug-01
Plant Spacing Sample Size	5cm between seeds rows 10cm apart 25	5cm between seeds rows 10cm apart 25	5cm between seeds rows 10cm apart 25	5cm between seeds rows 10cm apart 25

# PVP Application for SW CIRCUS Appl. #200200115 2000 Svalov, Sweden-SW CIRCUS

	Stem Vine Length	Stipule Length	Stipule Width	<b>Pod Width</b>
	48	55	28	14
	50	54	24	14
	54	51	22	14
	52	53	26	13
	55	56	26	13
	51	53	25	14
	50	54	26	14
	55	55	25	13
	48	50	25	15
	57	50	26	13
	59	57	27	14
	58	58	27	14
	56	56	26	14
	52	58	28	14
	60	58	28	. 14
	57	53	25	14
	50	54	26	14
	55	56	27	13
	52	58	28	13
	54	56	24	15
	55	53	24	13
	53	50	24	13
	54	48	23	14
	53	51	22	14
	52	50	23	14
AVG	53.6	53.88	25.4	13.76
ST DEV n=25	3.201562119	2.976575213	1.825741858	0.5972158

PVP Application for SW CIRCUS Appl. #200200115 2000 Svalov, Sweden-Carneval

	Stem Vine Length	Stipule Length	Stipule Width	Pod Width
	39	45	20	14
	48	47	20	12
	35	47	21	14
	45	50	22	12
	40	48	23	13
	49	46	21	13
	36	45	22	14
	50	52	20	13
	56	50	22	13
	49	50	21	13
	41	55	25	12
	47	45	19	13
	45	48	23	13
	40	50	22	14
	40	48	22	13
	52	46	21	14
	50	48	21	12
	45	50	23	11
	43	49	20	10
	47	48	22	13
	48	46	24	11
	46	48	22	15
	43	45	21	13
	48	46	23	13
	44	48	23	12
AVG	45.04	48	21.72	12.8
ST DEV n=25	5.020624131	2.415229458	1.4	1.118034

# PVP Application for SW CIRCUS Appl. #200200115 2001 Svalov, Sweden-SW CIRCUS

	Stem Vine Length	Stipule Length	Stipule Width	<b>Pod Width</b>
	50	61	29	13
	60	62	30	14
	55	54	24	13
	56	71	32	13
	60	59	27	13
	56	65	25	12
	55	68	30	12
	55	64	26	14
	60	60	24	13
	58	72	31	13
	61	62	30	13
	61	70	30	12
	63	66	25	13
	62	43	34	12
	63	66	28	12
	66	73	37	14
	58	65	30	13
	61	64	28	13
	57	72	30	13
	63	74	28	13
	65	66	30	14
	60	66	28	13
	62	68	28	13
	63	70	31	13
	72	78	35	13
AVG	60.08	65.56	29.2	12.96
ST DEV n=25	4.452714528	7.112664761	3.214550254	0.6110101

2008/016 200200115

# PVP Application for SW CIRCUS Appl. #200200115 2001 Svalov, Sweden-Carneval

	Stem Vine Length	Stipule Length	Stipule Width	Pod Width
	59	63	33	13
	53	61	29	12
	59	59	27	13
	59	65	27	13
	55	58	27	14
	57	58	29	14
	57	60	27	15
	57	56	22	13
	53	62	27	14
	53	66	32	14
	61	57	25	14
	56	55	24	14
	50	56	25	13
	54	54	21	14
	60	63	25	15
	49	54	23	15
	55	53	27	14
	59	57	25	15
	58	51	25	14
	59	60	25	13
	60	57	26	14
	60	65	25	15
	56	58	29	13
	55	56	22	14
	60	56	26	15
AVG	56.56	58.4	26.12	13.88
ST DEV	3.241398875	3,958114029	2.847806173	0.8326664

# UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE Science Division NATIONAL AGRICULTURAL LIBRARY BELTSVILLE, MARYLAND 20705 OBJECTIVE DESCRIPTION OF VARIETY

EXHIBIT C (Pca)

PEA (PISUM SATIVUM) NAME OF APPLICANTIS VARIETY NAME OR TEMPORARY DESIGNATION SVALOF WEIBULL AB ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) JU CIRCUS (SW 975504) 5-268 81 FOR OFFICIAL USE ONLY SVALOV, SWEDEN PVPO NUMBER Place the appropriate number that describes the varietal character in the boxes below. Place a zero in first box (e.s. 0 8 9 or 0 9 ) when number is either 99 or less or 9 or less. 1. TYPE: 1 - GARDEN 2 - FIELD 3 - EDIBLE-PODDED 2. MATURITY: Node number of first bloom: No. of days to processing Heat Units No. of days liarlier than 1 = ALASKA WR 2 - THOMAS LAXTON WR 3 = LITTLE MARVEL No. of days Later than . 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER 3. PLANT HEIGHT: 0 CM. HIGH Cm. Shorter than 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL Cm. Taller than . 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER 4. VINE: 1 = SLIM (Alaska) 3 = HEAVY (Alderman) 2 1 = DETERMINATE 2 = INDETERMINATE Habit: Stockiness: 2 = MEDIUM (Thomas Laxton WR) Branching: 1 = NONE (Alaska) 2 - 1-2 BRANCHES (Little Marvel) 3 = MORE THAN 2 BRANCHES (Dwarf Gray Sugar) 2 Internodes: 1 = STRAIGHT 2 - ZIG ZAG 2 NUMBER OF NODES 5. LEAFLETS: not present 1 = LIGHT GREEN (Alaska WR) 2 = MED. GREEN (Thomas Laxton WR) 3 = DARK GREEN (Alderman) Color: 4 = OTHER (Specify) Wax: 1 = NONE 2 = LIGHT 3 = MEDIUM 1 - NOT MARBLED 2 = MARBLED (Alaska) 4 = HEAVY Number of leaflet pairs: 1 = NOT PAIRED 2 = ONE 3 = TWO 4 = THREE OR MORE 6. STIPULES: 1 = LACKING 2 = PRESENT 1 - NOT CLASPING 2 = CLASPING 1 - SMALLER 2 = SAME 1 = NOT MARBLED 2 = MARBLED Size (Compared with leaflets): 3 = LARGER Color (Compared with leaflets): 1 = LIGHTER 2 = SAME 3 = DARKER 7. FLOWER COLOR: 1 - WHITE 2 - GREENISH 3 = LAVENDER VENATION STANDARD WING KEEL 4 = PURPLE 5 - RED

6 - OTHER (Specify)

8. PODS: 1 - STRAIGHT 2 - SLIGHTLY CURVED Shape: 2 3 \* CURVED End: 1 = POINTED (Alderman) 2 - BLUNT (Alaska) 1 = LIGHT GREEN (Alaska WR) 2 - MEDIUM GREEN 3 = DARK GREEN (Alderman) Color: 4 = OTHER (Specify) Surface: 1 = SMOOTH 2 = ROUGH 1 = SHINY Surface: 2 - DULL 1 = SINGLE 2 - DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE Borne: 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) CM. LENGTH MM. WIDTH (Between sutures) NO. SEEDS PER POD 9. SEEDS (95-100 Tenderometer): n/a Color: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = OTHER (Specify) \_ SEEDS (Dry, Mature): Shape: 1 - FLATTENED 2 = ANGULAR 3 = OVAL 4 - ROUNDED Surface: 1 = SMOOTH 2 - DIMPLED Surface: 1 - SHINY 2 = DULL 3 = WRINKLED 1 = MONOCOLOR 2 = MOTTLED Color Pattern: 3 = STRIPED 4 - DOTTED 1 = CREAMY-WHITE 2 = CREAM & GREEN 3 = LIGHT GREEN Primary Color: 4 = MEDIUM GREEN 5 = DARK GREEN 6 = BLUE-GREEN 7 = YELLOW 8 = BROWN 9 = RED Secondary Color: 10 - GRAY 11 - BLACK 1 - WHITE 2 - TAN Hilum Floor Color: Cotyledon Color: 1 = GREEN 2 = YELLOW 3 · BLACK 3 = ORANGE GRAMS PER 100 SEEDS 10. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant) 0 **FUSARIUM WILT** NEAR-WILT DOWNY MILDEW ASCOCHYTA BLIGHT POWDERY MILDEW BACTERIAL BLIGHT MOSAIC PEA ENATION MOSAIC YELLOW BEAN MOSAIC OTHER (Specify) 11. INSECT: (O= Not Tested; 1 = Susceptible; 2 = Resistant) 0 APHIDS OTHER (Specify) 12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED CHARACTER NAME OF VARIETY CHARACTER NAME OF VARIETY

Fresh Seed Color

Seed Shape

Plant Habit

Mature Seed Color

Carneyal

majoret

Leafiness

Leaf Color

Pod Color

Pod Shape

COMMENTS:

Carneval

Carneval

majoret

# SW CIRCUS (SW 975504) 2 0 0 2 0 0 1 1 5

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## A. ABOUT THE OBJECTIVE DESCRIPTION FORM

This objective description form is designed as an aid for the identification of field pea varieties to provide sufficient information for pedigreed seed crop inspection and variety verification purposes. Companion documents include the "Variety Registration Application Form" and the "Procedures for the Registration of Crop Varieties in Canada", both of which are available from the Variety Registration Office.

This objective description form lists characteristics to be used as the basis for developing the description of field pea varieties. It is recommended that the form be completed in as much detail as possible to ensure that an accurate description of the variety be on record. Uniformity and stability must be sufficient to ensure that the genetic purity of the variety has not been compromised during the development of the variety or during the seed multiplication process. However, accurate information on variability within the variety is essential for distinguishing between variants and off-types during the seed multiplication process.

Information on this document may be accessible or protected as required under the provisions of the *Access to Information Act*. Information that could cause you or your organization injury if released is protected from disclosure as defined in Section 20 of the *Access to Information Act*.

### B. TEST GUIDELINES

- 1. The candidate variety **must** be described for all characteristics designated on the form with the pound symbol (#).
- 2. A rating system of 1-9 provides a scale for describing most characteristics in this form. To rate characteristics, select a value that best corresponds to the state indicated. Characteristics may be rated with intermediate values where the characteristic grades gradually from one extreme to another. For example, where the states for a characteristic are described as: small (3), medium (5), large (7); other values of 1, 2, 4, 6, 8 or 9 may be selected.
- **3.** Each characteristic on this form has been arranged in a tabular format allowing the candidate variety (CV) and up to four reference/check varieties (Rl to R4) to be described. Information on reference varieties is useful but **not** required for variety registration. The reference varieties must be registered for sale in Canada.

# C. <u>LEGEND</u>

	Characteristics that must always be included when completing the objective description form
	for variety registration, except when the sate of expression of a preceding characteristic
	renders this impossible.

(+) Indicates an illustration or method for this trait is in the appendix.

CV	Candidate variety: SW 975504		
RI -	R4 Reference or check varieties		
RI _	Carneval	R3	
R2	Majoret	R4	

D.	PEA OBJECTIVE DESCRIPTION	<u>on</u>					
	Applicant (name and address):  Bonis & Company						
	208 St. David Street						
	Lindsay, ON						
	K9V 5Z4						
	Telephone: _(705) 324-0544					_	
1.0	CLASSIFICATION (#)						
1.1	Botanical name: Pisum sativum L	<b>.</b> .					
1.2	Type: 1. Field - green 2. Field - yellow						
1.2	Proposed variety denomination (na	ame): _	SV	V CIRCUS			
2.0	PLANT CHARACTERISTICS						
2.1 (#)	Plant: growth habit		CV	R1	R2	R3	R4
Dete	ermined (bush type)	1	9	9	9		
Inde	eterminate (tall type)	9					
2.2 (#)	Plant: height (observe when 30% o	of plant	s have on	e flower ope	en)		
Sho	rt ( < 25 cm)	3	5	5	5		
Med	lium (25-50 cm)	5					
Tall	( > 50 cm)	7					
2.3	Plant: foliage colour (observe at fle	owering	g)				
Yell	low green	1	2	2	2		
Gre	en	2					
Blue	e or dark green	3					
3.0	STEM CHARACTERISTICS Stem: fasciation						
(+)			Day Marie				
Abs		1	1	1	1		

32	Stem: vine length	observe after f	owering when	pods are fully swollen)	
----	-------------------	-----------------	--------------	-------------------------	--

(*) (+)		CV	R1	R2	R3	R4
Short (50 – 70 cm)	3	5	5	5		
Medium (90 – 115 cm)	5					
Long (130 – 150 cm)	7					

# 3.3 Stem: number of nodes up to and including first flowering node (observe at harvest, include the two scale nodes)

Few	3			
Medium	5			
Many	7			

# 3.4 Shape of internodes

Straight	1			
Curved	9			

#### 4.0 LEAF CHARACTERISTICS

# 4.1 Leaf: presence of leaflets

6	*	٦
ı.		1

Leafed	1	2	2	2	
Semi-leafless	2				
Leafless	3	STATE SAME			

# 4.2 Leaf: average maximum number of leaflets (observe any time after stipules at seventh node are fully opened)

(+)	
Four	1
Six	2
Eight	3

#### 4.3 Leaf: size (observe at second fertile node)

Small	3			
Medium	5		1 4 15	
Large	7			

4.4 Leaf: shape (observe at second fertile node)

Elliptic	1		PARE	
Ovate	9			

4.5 Leaf: waxiness of leaves and stipules

Absent	1	9	9	9	
Present	9				

(*)		CV	R1	R2	R3	R4
Absent	1					
Present	9					
4.7 Leaf: degree of dentati (+)	on					
Very weak	1	A RESTOR				
Weak	3					
Medium	5					
Strong	7					
Very strong	9					
4.8 Leaf: apex of leaflet						
Pointed	3					
Rounded	5					
Truncate	7					
Retuse	9					
<ul><li>5.0 STIPULE CHARACT</li><li>5.1 Stipule: development (compared (comp</li></ul>	bserve any time a		Maria Sala		y opened)	
5.1 Stipule: development (c		fter stipules	at seventh	node are fully	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size	bserve any time a		Maria Sala		y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal	bserve any time a		Maria Sala		y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+)	bbserve any time a	2	2	2	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small	bbserve any time a 1 2	2	2	2	y opened)	
5.1 Stipule: development (c) (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape	1   2   3   5	2	2	2	y opened)	
5.1 Stipule: development (c. (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape Elliptic	1   2   3   5   7	2	2	2	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape	1   2   3   5   7	2	2	2	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape Elliptic Broadly elliptic  5.4 Stipule: colouration	1   2   3   5   7     1   9	2	2	2	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape Elliptic Broadly elliptic  5.4 Stipule: colouration Absent	1   2   3   5   7     1   9	2	2	2	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape Elliptic Broadly elliptic  5.4 Stipule: colouration	1   2   3   5   7     1   9	2	2	2	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape Elliptic Broadly elliptic  5.4 Stipule: colouration Absent Present  5.5 Stipule: marbling (before)	1   2   3   5   7     1   9     9	3	3	3	y opened)	
5.1 Stipule: development (c (*) (+) Rudimentary Normal  5.2 Stipule: size (+) Small Medium Large  5.3 Stipule: shape Elliptic Broadly elliptic  5.4 Stipule: colouration Absent Present	1   2   3   5   7     1   9     9	3	3	3	y opened)	

5.6 Stipule: maximum density of marbling

(#)(+)		CV	R1	R2	R3	R4
Very sparse	1	2	5	3		
Sparse	3					
Medium	5	40.14				
Dense	7					
Very dense	9					

#### 6.0 FLOWERING CHARACTERISTICS

6.1 Time of flowering (observe when approximately 30% of plants have one flower open, avoid recording early flowering variants)

(#)

Early	3	5	5	5	
Medium	5				
Late	7				

Maximum number of flowers per node (non-fasciated varieties only, observe when highest nodes show signs of producing flowers which do not develop beyond the bud stage)

One	1
One to two	2
Two	3
Two to three	4
Three	5
Three to four	6
More than four	7

# 6.3 Flower: colour of wing

(#)

White	1	1	
Greenish	2		
Pink	3		
Purple	4		
Dark red	5		
Other:	6		

# 6.4 Flower: shape of wing

(#)

Round	1	1	1	1	
Notched	9	MIN MAR	Principle of		

# 6.5 Flower: colour of standard

1	7	٦	ľ	1	١	
1	'	•		2	_	

White	1	1	1	1	
Greenish	2				
Pink	3				
Reddish purple	4				
Other:	5				

### 6.6 Flower: size of standard

		CV	R1	R2	R3	R4
Small	3					
Medium	5					
Large	7					

# 6.7 Flower: shape of base of standard

(#)(+)

Raised (V-shaped)	3	7	9	7	
Level (straight)	5				
Arched (2 lobes)	7				
Strongly arched	9				

6.8 Flower: apex of calyx lobe (observe at second flowering node)

Acuminate	1			
Pointed	2			
Rounded	3			

## 7.0 POD CHARACTERISTICS

7.1 Pod: length (observe at first flowering node)

(#)

Short	3	71.0 mm	69.3 mm	76.5 mm	
Medium	5				
Long	7				

# 7.2 Pod: width (observe at first flowering node)

(#)

Narrow	3	13.0 mm	13.1 mm	13.8 mm	
Medium	5				
Broad	7				

# 7.3 Pod: parchment (observe when pods are dry and papery)

(#)(+)

Absent or partially present	1	9	9	9	MILLEA
Entirely present	9				

# 7.4 Pod: curvature (observe when pods fully swollen)

(#)

Absent	1	1	3	5	
Weak	3				
Medium	5				
Strong	7				
Very strong	9				

# 7.5 Pod: type of curvature (observe when pods are fully swollen)

(+)

Towards ventral part	1	A CONTRACTOR	
Straight	2		
Towards dorsal part	3		

(+)		CV	R1	R2	R3	R4
Pointed		9	9	1		
Blunt	9					
7.7 Pod: colour (observe wh (#) (+)	nen pods fully swo	ollen)				
Yellow	1	2	2	2		
Green	2					
Blue green	3					
Purple	4					
Other:	5					
7.8 Pod: number of ovules/s developed)		second ferti	le node wi	hen ovules/see	ds are partiall	у
Few	3					
Medium	5	No. in contrast				
Many	7					
Dark blue-green	9					
<ul><li>8.0 SEED CHARACTERI</li><li>8.1 Seed: shape of starch grant</li></ul>		erve dry see	d)			
<ul><li>8.0 SEED CHARACTERI</li><li>8.1 Seed: shape of starch grad(+)</li></ul>	ain			1		
<ul><li>8.0 SEED CHARACTERI</li><li>8.1 Seed: shape of starch grant</li></ul>		erve dry see	d)	1		
8.0 SEED CHARACTERI  8.1 Seed: shape of starch gra (+) Simple Compound  8.2 Seed: colour of cotyledo (#) (+) Green Yellow	ain  1 9 on  1 2			1		
8.0 SEED CHARACTERI  8.1 Seed: shape of starch grace (+) Simple Compound  8.2 Seed: colour of cotyledo (#) (+) Green Yellow Red  8.3 Seed: black colour of hit (#) (+)	ain	2	2	1		
8.0 SEED CHARACTERI  8.1 Seed: shape of starch grace (+) Simple Compound  8.2 Seed: colour of cotyledo (#) (+) Green Yellow Red  8.3 Seed: black colour of hi (#) (+) Absent	ain	1	1			
8.0 SEED CHARACTERI  8.1 Seed: shape of starch grace (+) Simple Compound  8.2 Seed: colour of cotyledo (#) (+) Green Yellow Red  8.3 Seed: black colour of his (#) (+) Absent	ain	2	2	1		
8.0 SEED CHARACTERI  8.1 Seed: shape of starch grace (+) Simple Compound  8.2 Seed: colour of cotyledo (#) (+) Green Yellow Red  8.3 Seed: black colour of hit (#) (+) Absent Present  8.4 Seed: shape	ain	2	2	1		
8.0 SEED CHARACTERI  8.1 Seed: shape of starch grace (+) Simple Compound  8.2 Seed: colour of cotyledo (#) (+) Green Yellow Red  8.3 Seed: black colour of hi (#) (+) Absent Present	ain	2	2	1		

(+)	THE LINE					
Absent	1	1	1	1		
Present	9					
8.6 Seed: size		CV	Di	Da	D2	D4
(#) (+)	1 2	CV 3	R1 3	R2	R3	R4
Small	5	3	3	13		
Medium	7					
Large	1					
8.7 Seed: weight (grams per	1000 seed)					
(#)	1000 seed)					
		240	235	260		
Weight in grams		THE STATE OF				
8.8 Time of maturity (observ	ve hard dry seed					
	ve mara, ary seed	,				
(#)						
(#) Early	3	3	5	5		
(#) Early	3 5		5	5		
(#) Early Medium Late	3		5	5		
(#) Early Medium	3 5		5	5		
(#) Early Medium Late	3 5 7		5	5		
(#) Early Medium Late	3 5 7		5	5		
(#) Early Medium Late  9.0 QUALITY CHARACT	3 5 7		5	5		
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content	3 5 7		5	5		
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content	3 5 7	3				
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#)	3 5 7		20.8	21.5		
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#)	3 5 7	3				
##) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content  (#)  Percentage	3 5 7	21.1	20.8			
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#) Percentage	3 5 7	21.1	20.8			
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#) Percentage	3 5 7	21.1	20.8			
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#) Percentage	3 5 7	21.1	20.8			
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#) Percentage	3 5 7	21.1	20.8			
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#) Percentage	3 5 7	21.1	20.8			
(#) Early Medium Late  9.0 QUALITY CHARACT  9.1 Protein content (#) Percentage	3 5 7	21.1	20.8			

# 10.0 REACTION TO DISEASES

- 0 not tested
- 1 resistant
- 3 moderately resistant
  5 moderately susceptible
  7 susceptible
  9 highly susceptible

		CV	R1	R2	R3	R4
10.1	Seedling blight, root rot and wilt  Aphanomyces euteiches  Fusarium oxysporum f.sp. pisi  Fusarium spp.  Pythium spp.					
10.2 (#)	Mycosphaerella blight and ascochyta foot rot  Mycosphaerella pinodes  Phoma medicaginis var.  Pinodella	7	7	5		
10.3	Ascochyta leaf and pod spot  Ascochyta pisi					
10.4	Downy mildew Peronospora viciae					
10.5 (#)	Powdery mildew Erysiphe polygoni	5	3	7		
10.6	Bacterial blight  Pseudomonas syringae pv. pisi					
10.7	Bean yellow mosaic virus					
10.8	Septoria leaf blotch Septoria pisi					
10.9	Other (specify)					

opnore	sis. Please attach data and the correspon	ading protocor.

12.0 (#)	Describe any deviant plants, including both variants and off-types observed during seed increase of the candidate variety. The maximum allowable frequency of each variant for each class of pedigreed seed must be given.
	No deviant plants or variants have been observed during seed increase of this variety.
C	SGA standards should apply for off-types for each pedigreed seed class
=	
13.0	List the characteristics that are the most useful for distinguishing the candidate variety. Refer to the characteristics using the objective description key numbers.
- 14.0	Additional characteristics:
1	1_07_04

#### PEA OBJECTIVE DESCRIPTION

APPENDIX

## APPENDEX

### METHODS AND ILLUSTRATIONS

#### 3.1 Stem: fasciation

The expression of fasciation varies considerably with environmental conditions, although the presence or absence of fasciation is usually clear.

#### 3.2 Stem: vine length

The observations should be made on harvested plants at mature green seed stage. The measurement should include nodes with scale leaves. Both plant height at flowering and stem length at mature green seed stage may vary with site and season due to different responses to day length, temperature and soil moisture. Both characteristics are good discriminators within years at one site, however, and allow the separation of different varieties.

#### 3.3 Stem: number of nodes up to and including the first flowering node

The expression can vary due to flower abortion under certain environmental conditions. Nodes with scale leaves should be included.

## 4.2 Leaf: average maximum number of leaflets

The maximum expression should be recorded over the whole plant. Although appearing to be continuously expressed, this characteristic is stable. Occasional plants may have a larger number of leaflets. The maximum number of leaflets for a sample of plants should be recorded and an average value calculated.

#### 4.6 Leaf: dentation

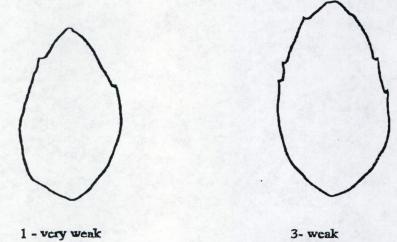
The observations should be made over the whole plant, with the exception of the lowest six nodes and all aerial and basal branches.

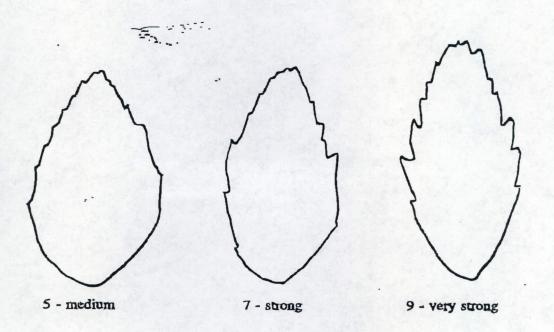


# PEA OBJECTIVE DESCRIPTION

APPENDIX

# 4.7 Leaf: degree of dentation





## 5.1 Stipule: development

Rudimentary stipules are lanceolate and surface area is reduced significantly by up to 80%. Plants with 'Rabbit-eared' stipules are not examples of rudimentary stipules.

# 5.2 Stipule: size

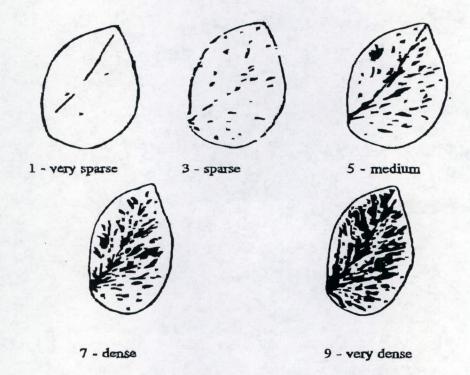
The observations should be made at the second fertile node on stipules which have been detached from the plant and flattened.

#### 5.5 Stipule: marbling

The observations should be made over the whole plant. Care has to be taken that foliage at the lowest nodes has not senesced before assessment. If assessed before flowering, the plant should have at least eight nodes, since flecking in some varieties may not be expressed at lower nodes.

## 5.6 Stipule: maximum density of marbling

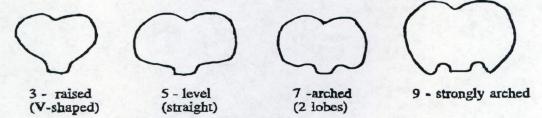
The observations should be made over the whole plant.



APPENDIX

## 6.7 Flower: shape of base of standard

The observations should be made on a sample from different plants. The standard should be detached and flattened on a hard surface and compared with example varieties before assigning a state.



## 7.3 Pod: parchment

- (1) The observation should be made on a sample from different plants when the pods are dry and papery.
- (2) The pod should be opened along the suture without damaging the edges of the two valves. The distribution of sclerenchyma, which makes up the parchment, may either be observed by staining with Phoroglucinol in Hydrochloric Acid, or by reflecting light (preferably daylight) on the inside of the pod wall.

If parchment for any pod is difficult to determine, pods from other nodes on the same plant should be examined.

## 7.5 Pod: type of curvature

The observations should be made on the upper suture on a sample of plants. The maximum expression over the whole plant should be assessed. The 'hook end' on long podded types should be ignored when assessing curvature.

#### 7.6 Pod: shape of distal part

The observations should be made only on varieties without thickened pod wall. They should be made on a sample of plants and on several nodes of each plant when pods are fully developed, but before any senescence. Care should be taken where pods are strongly curved, where the beak is longer than the pod tip, or where parchment is not entire. Some varieties have a blunt tip which is rounded, but the beak is higher up the pod.

## PEA OBJECTIVE DESCRIPTION

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#### 7.7 Pod: colour

- (1) Each state should be treated separately.
- (2) Varieties with yellow pods may also have yellowish peduncles and sepals. In the presence of anthocyanin, colouration of the pods will appear red.
- (3) The appearance of green pods is the result of yellow, purple and blue-green colours not being expressed.
- (4) Blue-green pods are dark and slightly bluish, but not as blue as blue-green foliage. The colour develops with time and may be more accentuated in hotter, drier conditions.
- (5) The expression of purple pods can be variable and unstable, disappearing on the same plant or being reduced in its distribution on the pod.

#### 8.0 DRY SEED CHARACTERISTICS

The provided seed should be mature and preferably not severely bleached, the assessment should be carried out within nine months after harvest. For varieties with anthocyanin pigment, tannins in the testa often darken with age, (usually after nine months) obscuring many characteristics. The observation is most clear under conditions of bright natural light; the assessment of some characteristics is difficult under artificial light.

## 8.1 Seed: shape of starch grain

- (1) After removing the testa, fine fragments of tissue should be extracted from the cotyledon and examined after having added water and been squashed gently between two microscope slides. Too much pressure during squashing results in fragmentation of the grains, too little pressure will not provide a layer thin enough for easy examination. This works best on pea flour (finely ground pea seed).
- (2) A microscope with transmitted light, using x16 eye-pieces and either x10 or x40 objectives, is most suitable for examination. For examination of compound grains, the larger objectives will be required.
- (3) Simple grains resemble wheat seeds or coffee beans in shape, often with what looks like a suture line running along their length.
- (4) Compound grains look irregularly star-shaped and appear to be made of a number of segments. The center of the grains may appear cross-shaped. Too much pressure during squashing causes fragmentation.

# PEA OBJECTIVE DESCRIPTION

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## 8.2 Seed: colour of cotyledon

The expression varies with environmental conditions:

(i) bleaching, caused by sunlight or chemical changes in the plant, can remove colour from both green and yellow cotyledon seeds;

(ii) colour becomes dull with age, even if seed is stored in cold, dark conditions;

(iii) colour can darken in the presence of high amounts of Tragacanth oil occurring on the underside of the testa. This fades as the seed ages.

There is a range of colour from yellow to orange yellow and from pale to dark green.

#### 8.3 Seed: black colour of hilum

- (1) The hilum colour can be influenced by the presence of tannin in the testa. If any loose tissue is present, the hilum area should be lightly polished with a cloth before recording,.
- (2) Spontaneous mutation from melanin absent to melanin present can occur. This appears to be more prevalent in colored flowered types. The mutation rate is unknown.

### 8.4 Seed: shape

The shape can be influenced by environmental conditions, although it is generally consistent from year to year, provided the seed has reached its full development.

## 8.5 Seed: wrinkling of cotyledon

The observations should be made on harvested seed. 'Golf ball' and large dimples should be ignored as these can also be found on smooth seeded (non-wrinkled) types. Cylindrically shaped seed types should be assessed carefully, because some are smooth seeded.

#### 8.6 Seed: size

The observations should be made on harvested seed only. The weight varies markedly from site to site but can be useful as a discriminator, it varies to a lesser extent from season to season at one site. Immature and infected seeds should be excluded; the seed should be dry (approximately 10-15% moisture content) at time of recording.

AGRICULTURAL MARKETING SERVICE	1974 (5 U.S.C. 552a) and the Paperwo	rk Reduction Act (PRA) of 1995.
EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP	Application is required in order to de certificate is to be issued (7 U.S.C. 2 until certificate is issued (7 U.S.C. 2426	etermine if a plant variety protection 421). Information is held confidential
NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
SVALÖF WEIBULL AB	SW 975504	SW CIRCUS
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)	5. TELEPHONE (include area code)	6. FAX (include area code)
5-268 81		
SUALON, SWEDEN	46-418-667000	46-418-667100
	7. PVPO NUMBER 2 0 0	200115
9. Is the applicant (individual or company) a U.S. national or U.S. based of lf no, give name of country	company?	YES NO
	NO If no, please answer one of the	following:
a. If original rights to variety were owned by individual(s), is (are) the o	original owner(s) a U.S. national(s)?	
YES	NO If no, give name of country	
b. If original rights to variety were owned by a company(ies), is(are) th	e original owner(s) a U.S. based compan	ıy?
YES	NO If no, give name of country	
11. Additional explanation on ownership (if needed, use reverse for extra	space):	

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

- 1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
- 2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
- 3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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# U.S. Plant Variety Protection Act - Authorization of an Agent

I hereby authorize Bonis & Company Ltd. to act, for all purposes of this Act, on behalf of me as my agent for the Field Pea Variety, **SW CIRCUS**.

Signature:

Howard K. Love

Canadian Research Director

Svalof Weibull AB

Date:

2002-03-11

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